

4.

COURSE NAME : CIVIL ENGINEERING GROUP
COURSE CODE : CE/CS/CR/CV
SEMESTER : VI FOR CE/CS/CR AND VII FOR CV
SUBJECT TITLE : RURAL ENGINEERING.
SUBJECT CODE :

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
01	-	02	-	-	-	-	-	25@	25

External @ Internal * on line Examination

Rationale:

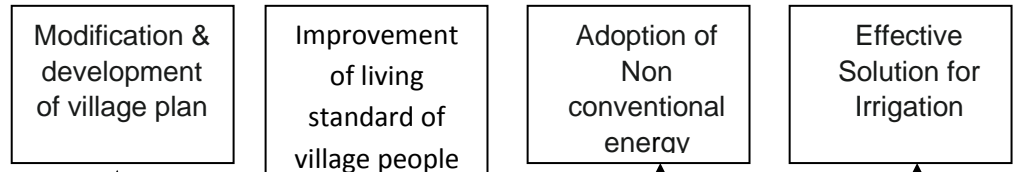
This subject is a means of the transfer of civil engineering technologies studied by the students in all semesters of the course towards rural development.

Agriculture Industry is the largest industry in India. The economy of the country largely depends upon the agricultural productions. Transfer of technology will enable the farmers to increase the yield of different crops. This will aim at sustainable development of villages which is necessary for nation building. About 65% of the population resides in villages. The development of village through different contents of this subject like water shed management, irrigation system, cottage industries, various central and state government schemes is possible due to techniques of transfer of technology.

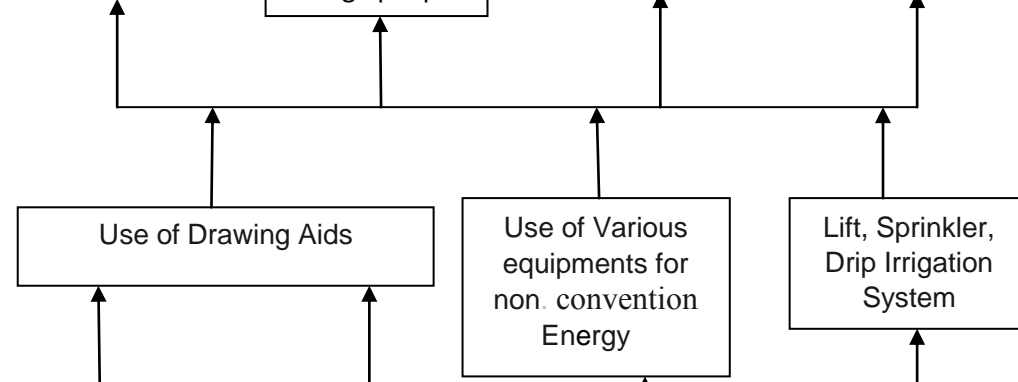
Thus the upliftment of villages due to rural engineering contents may reduce the migration of rural population to urban population.

Learning Structure:

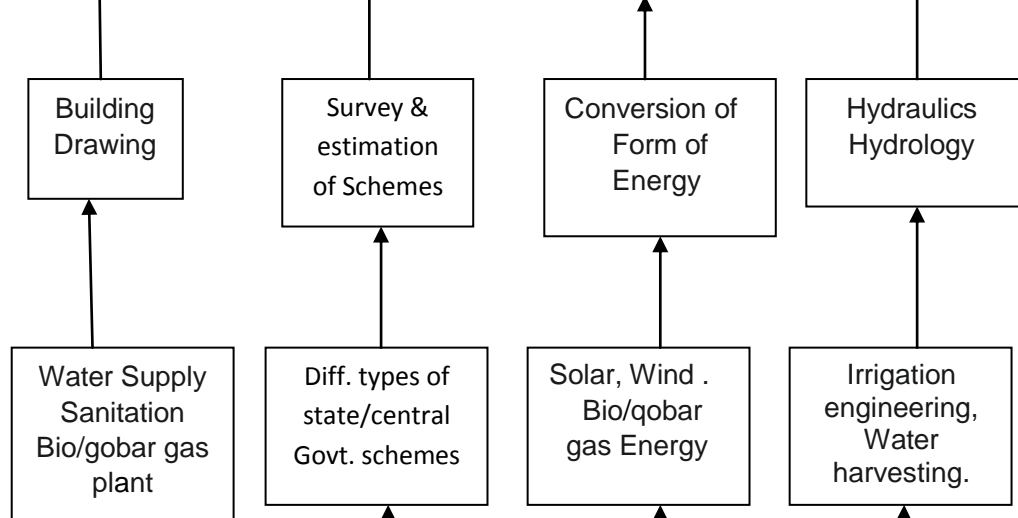
Application



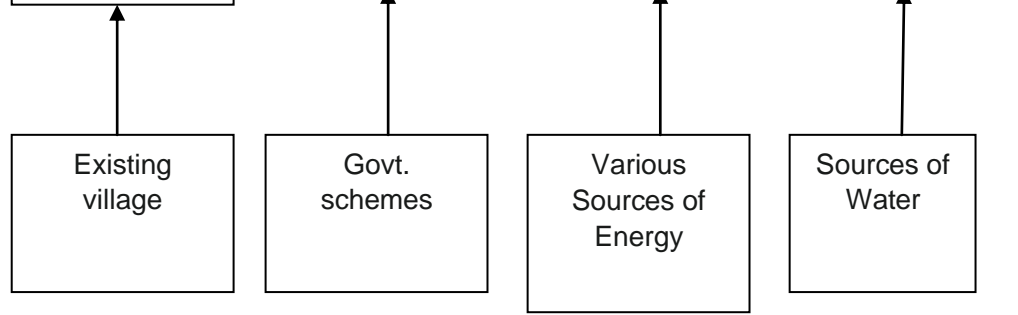
Procedure



Concept



Facts



Topic and Content	Hours
<p>Topic 1: Introduction</p> <ul style="list-style-type: none"> • Importance of Rural Engg. • Role of Civil Engg. Student in Rural development • Socio-Economical Survey- Purpose • Need assessment Survey-Use • Existing living in rural area- Residential accommodation, communication (Roads), light, drinking water, facility sanitary arrangements, Electrical Power, Health, medical facility. • Modification and improvement Suggested through Survey. 	4
<p>Topic 2: Water shed management</p> <ul style="list-style-type: none"> • Definition • Different types of water shed management structure eg. Gabian structure, Underground Bandhara , Kolhapur type weir , Cement Plug, Contour Bunding, Terracing, Rain Water Harvesting (mention types) • Their use and importance 	2
<p>Topic 3: Irrigation Systems</p> <ul style="list-style-type: none"> • Purpose • Types Drip irrigation, sprinkler irrigation, Lift irrigation • Sample layout, component parts, its effects 	3
<p>Topic 4: Cottage Industry</p> <ul style="list-style-type: none"> • Importance of cottage industry in rural development <p>E.g. Brick Manufacturing, cement block/ concrete block manufacturing. brief process, its impact</p>	2
<p>Topic 5: Different types of central Govt. and state Govt. Schemes</p> <ul style="list-style-type: none"> • Need of Different types of schemes. • Role of civil Engg. Student in the development of rural area. • Different Schemes (The provisions- and purpose/ use) <ul style="list-style-type: none"> – Indira Awas Yojana – Swajal Dhara Yojana – Jawahar Well Yojana 	2
<p>Topic 6: Non conventional energy</p> <ul style="list-style-type: none"> • Scope of non Conventional energy • Different types Solar enrage, bio gas, wind mill etc. • Use, advantages and disadvantages 	3
Total	16

❖ **Reference Books** : Govt. Publication/ Hand Books

Practicals:

Skill's to be developed

➤ **Intellectual Skills**

- 1) Use knowledge of civil engineering for solving the problems of rural population.
- 2) Inspire the villagers for using non conventional energy appliances.
- 3) Provide support services as a Civil Engineer for rural population.

➤ **Motor Skills**

- 1) Spare their services for various development schemes of state/central Govt.
- 2) Provide guidance to start cottage industries related to Civil Engineering.
- 3) Provide services for developing and propagating the programmes of water shed management

Term work shall consist of reports on of the following assignments:

1. Socio Economic and Educational survey of village: write a report to identify the need of village. The following is the suggested format (may be detailed further) for collection of factual information at village level. Additional to home to home information may also be collected by devising a suitable format to collect relevant personal and family information.

Carryout chain and compass survey along the roads of village locating homes and main features. Draw plan and show on it the proposed development.

● **Short village profile**

- Name of Village

- Block

- District

● **Total Population**

● **Population** Caste wise/ Male-Female/Age.

● **Total Houses** :- (a) Properly built (b) Unproperly built

● **Existing facilities available:-** eg. School, College, Hospital, Bank, Post office, Sanitation system, Approach road, Internal road, Drinking water etc.

● **Total Below Poverty Line Card holder**

- **Total Above Poverty Line member's (Above Rs. 18,000/- Per year)**
 - **Total White card holder (Above Rs. One lakh)**
 - **Natural resources available- Ponds / River/ Well/ Tube well**
 - **Number of Wells/ Bore wells**
2. Visit to the Structures built under water shed management program (at least two structures) Prepare neat labeled sketches and report with the following points: site selection, materials required/ procurement of material, process of construction, use, conclusion.
 1. Gabian structure
 2. Underground Bandhara
 3. Kolhapur type weir
 4. Cement Plug, Contour Bunding, Terracing.
 - 5 Rain Water Harvesting
 3. Report writing on the following with neat labeled sketches/ layout (Minimum area considered @ 0.5 Hector's) Minimum One
 - 3.1 Sprinkler Irrigation System, with capacity calculation, head and discharge calculation, power calculation for pump, pressure calculation for pipe.
 - 3.2 Drip Irrigation System with capacity calculation, head and discharge calculation, Power calculation for pump, pressure calculation for pipe.
 - 3.3 Layout of Lift Irrigation, with capacity calculation, head and discharge calculation, power calculation for pump, pressure and diameter calculation for pipe.
 4. Report writing under the guidance of teacher on any one of the cottage industries related to civil engineering regarding.

(Report consists of raw marital required, processes of molding / casting, equipment required, etc.)

 - 4.1 Brick Manufacturing.
 - 4.2 Cement Block /concrete precast block and pole manufacturing.
 - 4.3 Stone Crusher /Artificial sand.
 - 4.4 M. S. fabrication.
 5. Collecting information regarding schemes declared by State / Central Govt. in which Civil Engineer has effective participation. (at least one)
 1. Indira Awas Yojna
 2. Walmiki Awas Yojna
 3. Swajal Dhara Yojna
 4. Jawahar Well Yojna
 5. Village / Farm Tank.

6. Collecting information regarding use of non-conventional energy source like- Solar energy, Bio/Gobar Gas plant, wind mill etc.
7. A Study report on Concept of Community Polytechnic in India regarding its role in upliftment of rural population, its area of working, such as manpower development, transfer of technology, technical support services, information dissemination, community services. A visit to nearest Community Polytechnic shall be arranged. A visit report shall be prepared covering all aspects.

Learning Resources

1. Books

S. No	Title	Author	Publisher
1	Irrigation Engg.	S. K. Gurg	Laxmi
2	Building construction	S. Chand	Valey

2. CDS, PPTS Models charts

3. IS BIS and International codes

4. Websites:

www.rural.nic.in

www.lgd.gov.bd

www.rurdev.usda.gov

www.nabard.org

www.ldeorg.org